

Notice of Allowability

Application No.

09/813,240

Examiner

Johannes P Mondt

Applicant(s)

AMMON ET AL.

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed May 21, 2004.
2. ☒ The allowed claim(s) is/are 2 and 4-6.
3. ☐ The drawings filed on N.A. are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 2/11/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on February 11, 2004 was filed after the mailing date of the Non-Final Rejection on November 20, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the IDS has been considered by the examiner to the extent of the English text made available by Applicant therein.

Response to Amendment

Amendment filed 05/21/2004 forms the basis of this official action. In said Amendment Applicants amended all claims through amendment of independent claim 2. Applicant also amended Claim 5. Claims 2, 4, 5 and 6 are in the application, claims 1 and 3 having been canceled. Applicant also amended the Specification. Said amendment of the Specification is approved because the amended text is covered by the essence of the original Specification including the original claim language. It is furthermore noted that the amendment to claim 5 removes the grounds for the rejection under 35 USC 112, first paragraph.

REASONS FOR ALLOWANCE

Claims 1 and 4-6 are allowed.

1. The following is an examiner's statement of reasons for allowance: amendment to claim 5 removes the grounds for rejection under 35 USC 112, first paragraph, of

claim 5, the present claim language allowing the possibility of traces of gases other than hydrogen or argon to be included in the atmosphere.

Furthermore, with reference to the art rejections made in the previous official action: within the context of claim 2 none of the references to close prior art made of record or found to date teach as a method for producing a silicon semiconductor wafer pulling a silicon crystal from a melt to form voids of aggregated vacancy defects under a hydrogen partial pressure of less than 3 mbar thus (i.e., as a means to) substantially prevent oxygen from oxidizing internal surfaces of the voids.

Of those items listed on the recently submitted Information Disclosure Statement most relevant appears to be Umeno et al (Patent No.: JP411189495A; cf. IDS item AL on page 1), who teach the inclusion of hydrogen in an inert atmosphere during crystal growth so as to incorporate hydrogen at a concentration in the range between $5 \times 10^{11} - 10^{15} \text{ at/cm}^3$, which is quite similar to Applicant's disclosed most-preferred range of $10^{12} - 10^{15} \text{ at/cm}^3$. However, as best as can be discerned from the IDS submission (English abstract as provided within said IDS) no mention appears to be made by Umeno et al as to the value of the hydrogen partial pressure during pulling of the crystal.

A further search has revealed no pertinent prior art over which the independent claim must be rejected.

2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
September 13, 2004